



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/966,440	09/27/2001	Akira Yamaguchi	2102475-991160	5355

26379 7590 02/27/2003

GARY CARY WARE & FREIDENRICH LLP  
1755 EMBARCADERO ROAD  
PALO ALTO, CA 94303-3340

EXAMINER

MANDALA, VICTOR A

ART UNIT	PAPER NUMBER
----------	--------------

2826

DATE MAILED: 02/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/966,440

Applicant(s)

YAMAGUCHI ET AL.

Examiner

Victor A Mandala Jr.

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 27 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) 18-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 18-20, 24-28, 30-32 and 35 is/are rejected.
- 7) ☐ Claim(s) 21-23, 29, 33 and 34 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 18-20, 24-28, 30-32, & 35 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,078,100 Duesman et al.

1. Referring to claim 18, a semiconductor device comprising: a semiconductor substrate, (Figure 4a examiner's label #10); a first intermediate layer, (Figure 4a examiner's label #1), having a first thickness and provided above the semiconductor substrate, (Figure 4a examiner's label #10); and a second intermediate layer, (Figure 4a examiner's label #2), having a second thickness thinner than the first thickness and provided above the first intermediate layer, (Figure 4a examiner's label #1).
2. Referring to claim 19, a semiconductor device, further comprising: a lowermost layer, (Figure 4a examiner's label #4), nearest to the semiconductor substrate, (Figure 4a examiner's label #10), and provided below the first intermediate layer, (Figure 4a examiner's label #1); and an uppermost layer, (Figure 4a #122), farthest from the semiconductor substrate, (Figure 4a examiner's label #10), and provided above the second intermediate layer, (Figure 4a examiner's label #2).

3. Referring to claim 20, a semiconductor device, wherein a wiring pitch of the first intermediate layer, (Figure 4a examiner's label #1), is greater than that of the second intermediate layer, (Figure 4a examiner's label #2).
4. Referring to claim 24, a semiconductor device, wherein the first intermediate layer, (Figure 4a examiner's label #1), is substantially as thick as the uppermost layer, (Figure 4a #122).
5. Referring to claim 25, a semiconductor device, wherein the second intermediate layer, (Figure 4a examiner's label #2), is substantially as thick as the lowermost layer, (Figure 4a examiner's label #4).
6. Referring to claim 26, a semiconductor device, wherein all of the uppermost layer, the lowermost layer and the first and second intermediate layers are metal layers, (Col. 2 Lines 9-11 & 13-14).
7. Referring to claim 27, a semiconductor device comprising: a semiconductor substrate, (Figure 4a examiner's label #10); an IP core area, (Figure 9), on the semiconductor substrate, (Figure 4a examiner's label #10); a peripheral area on the semiconductor substrate, (Figure 4a examiner's label #10), except for the IP core area, (Figure 9); a first intermediate layer, (Figure 4a examiner's label #1), having a first thickness and provided above the semiconductor substrate, (Figure 4a examiner's label #10), in the IP core area, (Figure 9); and a second intermediate layer, (Figure 4a examiner's label #2), having a second thickness smaller than the first thickness and provided above the first intermediate layer, (Figure 4a examiner's label #1), in the IP core area, (Figure 9).

8. Referring to claim 28, a semiconductor device, further comprising: a lowermost layer, (Figure 4a examiner's label #4), nearest to the semiconductor substrate, (Figure 4a examiner's label #10), and provided below the first intermediate layer, (Figure 4a examiner's label #1); and an uppermost layer, (Figure 4a #122), farthest from the semiconductor substrate, (Figure 4a examiner's label #10), and provided above the second intermediate layer, (Figure 4a examiner's label #2).
9. Referring to claim 30, a semiconductor device, wherein a wiring pitch of the first intermediate layer, (Figure 4a examiner's label #1), is greater than that of the second intermediate layer, (Figure 4a examiner's label #2).
10. Referring to claim 31, a semiconductor device, wherein the first intermediate layer, (Figure 4a examiner's label #1), is substantially as thick as the uppermost layer, (Figure 4a #122).
11. Referring to claim 32, a semiconductor device, wherein the second intermediate layer, (Figure 4a examiner's label #2), is substantially as thick as the lowermost layer, (Figure 4a examiner's label #4).
12. Referring to claim 35, a semiconductor device, wherein all of the uppermost layer, (Figure 4a #122), the lower most layer, (Figure 4a examiner's label #4), and the first and second intermediate layers, (Figure 4a examiner's label #1 & 2), are metal layers. (Col. 2 Lines 9-11 & 13-14).

*Allowable Subject Matter*

13. Claims 21-23, 29, and 33-34 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 2826

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor A Mandala Jr. whose telephone number is (703) 308-6560. The examiner can normally be reached on Monday through Thursday from 8am till 6pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (703) 308-6601. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

VAMJ  
February 24, 2003